17. As per the collision theory, increasing the number of collisions has what effect on the rate of reaction?

- A: Rate of reaction decreases.
- B: Rate of reaction increases.
- C: Rate of reaction may increase or decrease.
- D: Rate of reactions remains constant.

18. Increasing the concentration of the reactants would?

- A: Increase the rate of reaction.
- B: Decrease the rate of reaction.
- C: Has no effect on the rate of reaction.
- D: Depends on the temperature.

19. Consider the following equation

$$K = A\, e^{-Ea/RT,}$$ **In this equation?**

- A: A is the number of molecules of the reactant.
- B: A is the number of molecules of the product.
- C: A is the propotionality constant.
- D: A is the Arrhenius constant

20. The substance that fits on the enzyme surface and is converted into product is called ?

- A: Co-factor
- B: Prosthetic group
- C: Isoenzyme
- D: Substrate

TEST 2

1. For third order reactions the half life is?

- A: Independent of the initial concentration of the reactants.
- B: Inversely proportional to the initial concentration of the reactants.
- C: Inversely proportional to the square of the initial concentration of the reactants.
- D: Inversely proportional to the cube of the initial concentration of the reactants.

2. In zero order reaction, the rate is independent of:

- A: Temperature of reaction
- B: Concentration of reactants
- C: Concentration of products
- D: None of these

3. It is experimentally found that catalyst is used to:

- A: Lower the activation energy
- B: Increase the activation energy
- C: Lower pH
- D: Decrease the temperature of other reactants

4. In some reactions , a product formed acts as catalyst. This phenomenon is called:

- A: Negative catalyst
- B: Activation catalyst
- C: Autocatalyst
- D: Heterogeneous catalyst

5. Which of the following gives the rate of reaction when the concentration of the reactants are unity?

- A: $R = k [A]^a [B]^b$
- B: $R = [A]^a [B]^b$
- C: $R = k$
- D: $R = 1/k$

6. Half life of an n order reaction is proportional to?

- A: $1/a^n$
- B: $1/a^{n+1}$
- C: $1/a^{n-1}$
- D: $1/a^{n-2}$

7. **For a reaction 2A + B → C +D the active mass of B is kept constant and that of A is tripled. It is observed that the rate of reaction:**

- A: Decrease three times
- B: Decreases nine time
- C: Increases six times
- D: Increases nine times

8. **For calculating the rate of reaction for the gas phase reactions, which units may also used to represent the concentration apart from mol/L?**

- A: Volume
- B: Temperature
- C: Pressure
- D: None of the above.

9. **Which of the following statement is not true?**

- A: At start the instantaneous rate of reaction is higher than the average rate of reaction.
- B: At the end the instantaneous rate of reaction is lower than the average rate of reaction.
- C: Instantaneous rate of reaction is never equal to the average rate of reaction.
- D: Both A and B.

10. **Which of the following is not true about the catalysts?**

- A: They remain unchanged in the mass and chemical composition throughout the reaction.
- B: They are more effective in finely divided form.
- C: They start the chemical reactions which otherwise are thermodynamically not feasible
- D: Their role is affected by the temperature.

11. **What is the effect of light on some chemical reactions?**

- A: Light does not effect any chemical reacton except photosynthesis.
- B: Light decreases the rate of reaction by providing negative energy.
- C: Light increases the rate of reaction by providing additional energy.
- D: Light lowers the activation energy of the reactions

12. **The half life period of a first order reaction is 10 minutes. What is the rate constant?**

- A: $6.93 \times 10^{2} min^{-1}$
- B: $0.693 \times 10^{-2}\ min^{-1}$
- C: $6.932 \times 10^{-2} min^{-1}$
- D: $69.3 \times 10^{-1}\ min^{-1}$

13. **Increasing temperature by 10K has roughly what effect on the rate of reaction?**

- A: No effect.
- B: Reaction rate is reduce to half.
- C: Reaction rate is doubled.
- D: Reaction rate increases 10 times.

14. Why do some reactants react faster in the powdered form?

- A: Powdered form has higher concentration of the reactant.
- B: Powdered form increases the surface area of reaction.
- C: Powdered form lowers the activation energy.
- D: All of the above.

15. In modern Haber process plants ,the temperature maintained during the process is:

- A: 270-370 K(0^{o}C- 100^{o}C)
- B: 370-470 K (100^{o}C- 200^{o}C)
- C: 570-600 K (300^{o}C- 380^{o}C)
- D: 670-770 K (400^{o}C- 500^{o}C)

16. Which of the following is not a method for determining the rate of reaction?

- A: Chemical method.
- B: Method of large excess.
- C: Spectrometry.
- D: Optical rotation method.

17. A reaction was found to be in second order with respect to the concentration of carbon monoxide. If the concentration of carbon monoxide is doubled with everything else kept the same, the rate of reaction will?

- A: be doubled.
- B: remain unchanged.
- C: be tripled.
- D: increase by a factor of 4.

18. Which of the following is not a method for finding the order of reactions?

- A: Differential method.
- B: Half life method.
- C: Method of large excess.
- D: Dilatometric method.

19. The rate constant of a first order reaction is 3 x 10 $^{-6}$ per second and initial concentration is 0.10 M. The initial rate of reaction is?

- A: 3 x 10 $^{-6}$ ms^{-1}
- B: 3 x 10 $^{-7}$ ms^{-1}
- C: 3 x 10 $^{-8}$ ms^{-1}
- D: 3 x 10 $^{-9}$ ms^{-1}

20. The number of atoms or molecules whose concentration determines the rate of a chemical reaction is called the ?

- A: Molecularity of the reaction
- B: Order of the reaction
- C: Specific activity of the reaction
- D: Rate constant of the reaction

TEST 3

1. **A plot for Arrhenius equation for a reaction shown the slope = -1000 K. What is the activation energy for this reaction?**

- A: 16 KJ
- B: 17 KJ
- C: 18 KJ
- D: 19 KJ

2. **What is the rate of reaction for the given equation?**

$2N_2O_5$ -----> $2N_2O_4 + O_2$

- A: $R = k [N_2O_5]$
- B: $R = k [N_2O_5]^2$
- C: $R = k$
- D: $R = k [N_2O_5]^3$

3. **$2\ HgCl_2(aq) + C_2O_4^{2-}(aq) \rightarrow 2\ Cl^-(aq) + 2\ CO_2(g) + Hg_2Cl_2(s)$ has the observed rate equation $= r = k[HgCl_2]^1[C_2O_4^{2-}]^2$.**

What is the order of the reaction with respect to the oxalate ion?

- A: 0
- B: 1
- C: 2
- D: 3

4. **Which of the following statement regarding the order of reactions is correct?**

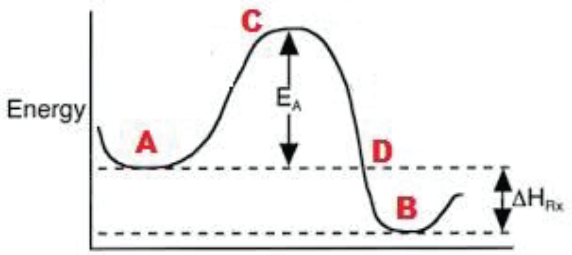
i. It can be zero, ii. it can be a fraction, iii. It can be negative.

- A: i only
- B: i and ii only
- C: i and iii only
- D: i, ii and iii.

5. **Instantaneous rate of reaction is given by?**

- A: $\Delta x/\Delta t$
- B: dx/dt
- C: $\Delta x * \Delta t$
- D: dx^2/dt

6. **For the Exothermic reaction path shown below, identify the point of activation complex?**



- A: A
- B: B
- C: C
- D: D

7. **As per Arrhenius equation, k = ?**

- A: Ae^{-2RT}
- B: $Ae^{-RT/E}$
- C: $Ae^{-E/RT}$
- D: $Ae^{-Ea/RT}$

8. **Light increases the rate of reaction for which of the following reactions?**

- A: Reaction between methane and chlorine.
- B: Reaction between Nitrogen monoxide and hydrogen.
- C: Hydrolysis of ester.
- D: None of the above.

9. **What is the order of the given reaction with respect to $FeCl_3$?**

$2FeCl_3 + 6KI$ ----------> $2FeI_2 + 6KCl + I_2$

- A: 0
- B: 1
- C: 2
- D: 3

10. **Which of the following is the mathematical representation of the half life of the second order reactions?**

- A: $[t_{1/2}] = 1/k$
- B: $[t_{1/2}] = 0.693/k$
- C: $[t_{1/2}] = 1/ka$
- D: $[t_{1/2}] = 1.5/ka^2$

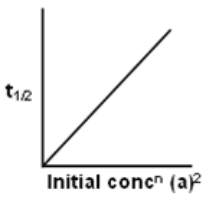
11. Half life period is independent of the initial concentration of the reactants for?

- A: First order reaction.
- B: Second order reaction.
- C: Third order reactions.
- D: All of the above.

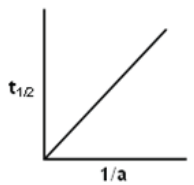
12. The rate law for a reaction between the substances A and B is given by, rate = $k[A]^n[B]^m$. On doubling the concentration of A and halving the concentration of B, the ratio of the new rate to the earlier rate of the reaction will be?

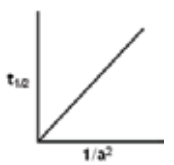
- A: 1/2(m+n)
- B: (m+n)
- C: (m-n)
- D: $2^{(n-m)}$

13. Which of the following graphs represents relation between initial concentration of reactants and half-life for third order reaction?

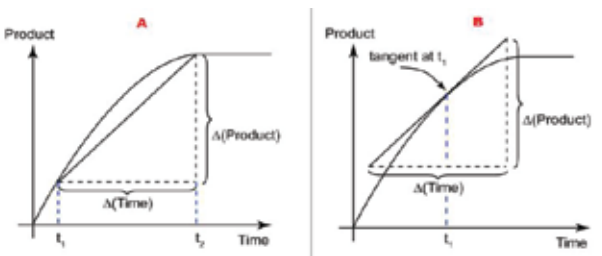
- A: 

- B:

- C: 

- D: 

14. For the two graphs given below, which of the following statement is true?



- A: Both of them give the average rate of reaction.
- B: Both of them give the instantaneous rate of reaction.
- C: A gives the instantaneous while B gives the average rate of reaction.
- D: B gives the instantaneous while A gives the average rate of reaction.

15. aA + bB ----> cC + dD with R = k [B]. In this reaction the concentration of which of the following remains constant?

- A: A
- B: B
- C: C
- D: D

16. What is the half life of a second order reaction if k = 0.08 L mol^{-1} s^{-1} and the initial concentration of the reactant is 0.05 M?

- A: 250 s
- B: 500 s
- C: 775 s
- D: 1000 s

17. The temperature dependence of rate constant (k) of a chemical reaction is written in terms of Arrhenius equation $k=Ae^{-Ea/RT}$. Activation energy (Ea) of the reaction can be calculated by plotting?

- A: log k vs T
- B: log k vs 1/T
- C: k vs T
- D: k vs 1/log T

18. Which of the following statement is true for the exothermic reactions?

- A: The products are at a lower energy level than the reactants.
- B: Activation energy for forward reaction is more than the backward reaction.
- C: Activation complex is formed at lower energy level as compared to the endothermic reactions.
- D: All of the above.

19. The rate of a third order reaction A + B + C ----> P + Q is 4.2×10^{-2} mol L^{-1} s^{-1}. Find the specific rate constant when the concentrations of A, B and C are 0.25, 0.10 and 0.05 mol L^{-1}respectively. Assume that the balanced equation gives the experimental co-efficient of the reaction rate.

- A: Not enough information given to calculate the answer.
- B: 1.8 L^2 mol^{-2} s^{-1}
- C: 12.4 L^2 mol^{-2} s^{-1}
- D: 33.6 L^2 mol^{-2} s^{-1}

20. Which of the following statements is not correct?

- A: In zero order reaction the rate of the reaction remains constant throughout.
- B: A second order reaction would become a pseudo first order reaction when one of the reactants is taken in large excess.
- C: The value of t1/2 for a first order reaction is independent of initial concentration.
- D: The value of first order rate constant depends on the units of the concentration terms used.

TEST 4

1. **According to the collision theory of bimolecular reactions in gas phase, minimum amount of energy required for an effective collision is known as:**

- A: Heat of reaction
- B: Entropy heat
- C: Enthalpy heat
- D: Energy of activation

2. **For any reaction A ---------> B, which of the following statement is correct regarding the rate of reaction?**

- A: $d[A]/dt = d[B]/dt$
- B: $-d[A]/dt \neq d[B]/dt$
- C: $d[A]/dt = - d[B]/dt$
- D: $-d[A]/dt = d[B]/dt$

3. **Hydrolysis of ester is what kind of reaction?**

$$CH_3COOC_2H_5 + H_2O \text{ -----> } CH_3COOH + C_2H_5OH$$

- A: Zero order reaction.
- B: First order reaction.
- C: Pseudo first order reaction.
- D: Second order reaction.

4. **In an enzyme-catalyzed reaction, the reactant concentration is much greater than the enzyme concentration which controls the rate. What is the expected order of the reaction?**

- A: 0
- B: 1
- C: 2
- D: 3

5. **A _____ order reaction has a rate proportional to the product of the concentration of two reactants, or to the square of the concentration of a single reactant.**

- A: Zero
- B: First
- C: Second
- D: Third

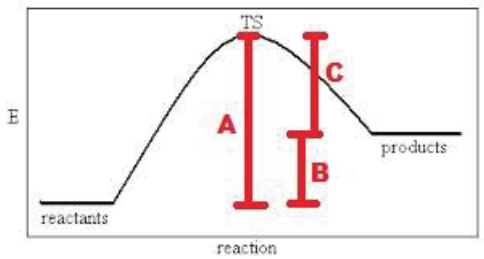
6. **For a first order reaction A -> B, the reaction rate at reactant concentration of 0.01 M is found to be 2.0 x 10^{-5} mol L^{-1} s^{-1}. The half life period of the reaction is?**

- A: 70
- B: 119
- C: 317
- D: 347

7. **For a general equation aA + bB ----------> cC + dD, the rate of reaction is given by? (assume that a, b, c, d are equal to the experimentally calculated values for a reaction)**

- A: $[A]^a [B]^b$
- B: $k [A]^a [B]^b$
- C: $[A]^a [B]^b / [C]^c [D]^d$
- D: $k [A]^a [B]^b / [C]^c [D]^d$

8. **Which of the following show the activation energy for the reaction path graph below?**



- A: A
- B: B
- C: C
- D: None of the above.

9. **What is the half life of a third order reaction if k = 1 and a = 0.2 M?**

- A: 5 s
- B: 7.5 s
- C: 25 s
- D: 37.5 s

10. **Which of the following is a pseudo first order reaction?**

- A: aA + bB ----> cC + dD with R = k [A] [B]
- B: aA + bB ----> cC + dD with R = $k [A]^b [B]^a$
- C: aA + bB ----> cC + dD with R = $k [A]^a [B]^b$
- D: aA + bB ----> cC + dD with R = k [A]

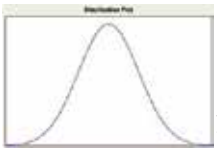
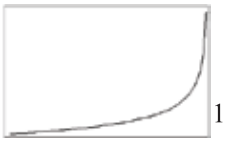
11. **Which of the following type of reaction would be the fastest one?**

- A: Oxidation
- B: Reduction
- C: Ionic
- D: Neutralization

12. Keeping in mind the electrode potential, which one of the following reaction is possible?

- A: $Zn^{2+} + Cu$ --------> $Cu^{2+} + Zn$
- B: $Zn + MgSO_4$ ----------> $ZnSO_4 + Mg$
- C: $Fe + CuSO_4$ ----------> $FeSO_4 + Cu$
- D: $Cd + MgSO_4$ ----------> $CdSO_4 + Mg$

13. By considering Arrhenius equation, the graph between "1/T" and "log k" gives a curve of the type:

- A: logK 1/T
- B: log K 1/T
- C: log K  1/T
- D: log K  1/T

14. For homogeneous catalysis reaction between liquids, the catalyst should be of which form?

- A: Solid
- B: Liquid
- C: Gas
- D: Can be any of the above.

15. Which of the following method is particularly suitable for measuring the rate of the reactions in solution?

- A: Electrical conductivity method.
- B: Dilatometric method.
- C: Refractrometric method.
- D: Chemical method.

16. Which of following method is used to measure the rate of reaction if only small changes in the volume are involved?

- A: Dilatometric method
- B: Optical rotation method
- C: Chemical method
- D: Spectrometry

17. Ammonia can be produced acccording to the following reaction

$$N_2 + 3H_2 \overset{Fe_2O_3/Al_2O_3,K_2O}{\rightarrow} 2NH_3$$

In this reaction?

- A: Fe_2O_3 and AI_2O_3 are catalyst while K_2O is a promoter
- B: Fe_2O_3 is catalyst while Al_2O_3 and K_2O are promoters
- C: Al_2O_3 and K_2O are catalysts while AI_2O_3 is a promoter
- D: Fe_2O_3 and K_2O are catalysts while AI_2O_3 is a promoter

18. For a heterogeneous catalysis between gases, the catalyst could be of which form?

- A: Solid
- B: Liquid
- C: Gas
- D: Both A and B.

19. A reactant X is decomposed with a half life of 25 mins. If 0.1 mol/dm^3 of the reactant is present, what would be the remaining reactant after 100 mins?

- A: 0.00625 mol/dm^3
- B: 0.0125 mol/dm^3
- C: 0.025 mol/dm^3
- D: 0.05 mol/dm^3

20. Which of the following statements regarding the rate of reactions is true?

- A: Rate of reaction under given conditions (T, P) is always constant.
- B: Rate of reaction increases with time.
- C: Rate of reaction decreases with time.
- D: Under the constant concentrations of the reactants, the rate of reaction is constant.

Elements & Periodicity

TEST 1

1. Halides have three types: Ionic, covalent and?

- A: Amphoteric
- B: Intermediate.
- C: Polymeric
- D: Halides have only two types.

2. First Period contains how many elements?

- A: 1
- B: 2
- C: 8
- D: 18

3. Energy released or absorbed when electron is added to an element is known as?

- A: Ionization energy.
- B: Hydration energy
- C: Oxidation energy
- D: Electron affinity

4. Lower elements of group III A, IV A and V A are called?

- A: Metals
- B: Metalloids
- C: Transition elements
- D: Alkalis

5. After hydrogen and helium, the smallest element in the periodic table is?

- A: Cesium
- B: Fluorine
- C: Lithium
- D: Neon

6. Elements in the I A and II A subgroups are also called?

- A: p block elements
- B: s block elements
- C: d block elements
- D: f block elements

7. **Ionization energy is highest for which group of elements**?

- A: Alkali metals
- B: Alkaline earth metals
- C: Halogens
- D: Inert gases

8. The hydrides of Group I A are classified as?

- A: Ionic
- B: Covalent
- C: Intermediate
- D: Ionic except hydrogen.

9. Period 4 and 5 contain how many elements?

- A: 8
- B: 10
- C: 18
- D: 32

10. How many periods are there in the periodic table?

- A: 5
- B: 6
- C: 7
- D: 8

11. The atomic radius increases as we move down a group because ?

- A: Effective nuclear charge increases
- B: Atomic mass increases
- C: Added electrons are accommodated in new electron shells
- D: Atomic number increase

12. Which of the following groups have the greatest tendency to lose electron ?

- A: Group II A
- B: Group IV A
- C: Group V A
- D: Group VI A

13. All the elements in the group 1 A are metals except?

- A: H
- B: Li
- C: Na
- D: K

14. Elements with seven electrons in their valence shell are known as ?

- A: Inert
- B: Lanthanides
- C: Halogens
- D: Alkali metals

15. Mendeleev's Periodic table was based on ?

- A: Atomic number
- B: Atomic mass
- C: Atomic volume
- D: Electronic configuration

16. Elements of group I A are called?

- A: Alkaline earth metals
- B: Transition elements
- C: Rare earth metals
- D: Alkali metals

17. Charge that an element has in a compound is called?

- A: Ionization state
- B: Hydration state
- C: Affinity state
- D: Oxidation state

18. Mendleev's periodic table was based on ?

- A: Atomic number
- B: Atomic mass
- C: Atomic volume
- D: Electronic configuration

19. Law of octaves states that ?

- A: The properties of every 6^{th} element from the given one is similar to the first
- B: The properties of every 7^{th} element from the given one is similar to the first
- C: The properties of every 8^{th} element from the given one is similar to the first
- D: The properties of every 18^{th} element from the given one is similar to the first

20. Which one remain same along a period?

- A: Atomic radius
- B: Melting point
- C: Electrical conductance
- D: Number of shells (orbits)

TEST 2

1. How many elements have been discovered so far ?

- A: 90
- B: 102
- C: 110
- D: 118

2. Ionization energy within a group?

- A: Increases from the top to bottom
- B: Decreases from the top to bottom
- C: Remains same from the top to bottom.
- D: May increase or decrease from the top to bottom.

3. Elements which form basic oxides are?

- A: Electropositive
- B: Electronegative
- C: Inert
- D: None of these

4. Hydrogen has similar properties as of?

- A: Group IA
- B: Group IA or VIIA
- C: Group IA or IVA
- D: Group IA, IVA or VIIA.

5. Ionization energy depends on which of the following?

i. Magnitude of nuclear charge, ii. Size of atom, iii. Shielding effect

- A: iii only
- B: i and iii only
- C: ii and iii only
- D: i, ii and iii.

6. Radon is a _____ emitter and is used to treat _____?

- A: Beta, Kidney stone
- B: Alpha, Kidney stone
- C: Beta, Cancer
- D: Alpha, Cancer

7. When moving down the group in IA and IIA the electrical conductance?

- A: Increases
- B: Decreases
- C: Remains same
- D: There is no particular trend.

8. The lowest ionization energies are found in the?

- A: Inert gases
- B: Transition elements
- C: Alkaline earth metals
- D: Alkali metals

9. Which of the following elements would have more than one values of ionization energy?

i. Na, ii. Mg, iii. Al

- A: i only
- B: ii only
- C: ii and iii only
- D: i, ii and iii.

10. Which of the following pairs of elements are chemically most similar ?

- A: Na and AI
- B: O and S
- C: S and F
- D: B and N

11. Which orbital is responsible for valency in the transition elements?

- A: s block
- B: p block
- C: d block
- D: f block

12. Keeping in view the size of atoms, which order is incorrect?

- A: N>C
- B: P>Si
- C: Ar>Cl
- D: Li>Be

13. Melting points of group VII A elements _____ down the group ?

- A: Increase
- B: Decrease
- C: Remain constant
- D: No regular trend

14. Ionization energy is lowest for which group of elements?

- A: Inert gases
- B: Halogens
- C: Alkali metals
- D: Alkaline earth metals

15. More the ionization energy of an element :

- A: More the electropositivity.
- B: More the reducing power.
- C: Bigger the atomic radius.
- D: Less the metallic character.

16. From left to right in a period charge to size ratio of ions increases therefore the hydration energy ?

- A: Decreases
- B: Increases
- C: Remains constant
- D: Hydration energy has no relation with charge to size ratio.

17. The element with Z = 20 is placed in the period ?

- A: 2
- B: 3
- C: 4
- D: 5

18. Oxidation state of an atom represent ?

- A: No. of electrons gained
- B: No. of electrons lost
- C: No. of electrons gained or lost
- D: None of the above

19. The element with atomic number 7 is likely to have some properties to the element whose atomic number is?

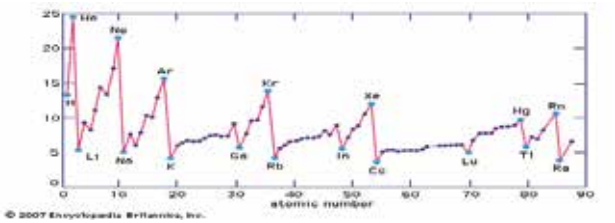
- A: 11
- B: 13
- C: 15
- D: 17

20. Elements present in a same group have the same ?

- A: Atomic number
- B: Molecular weight
- C: Chemical properties
- D: Number of electrons in the outermost shell

TEST 3

1. The graph below is for which of the following physical properties of the elements? (Dots between two given elements show the elements in the same period)



- A: Atomic radius
- B: Melting point
- C: Boiling point
- D: First ionization energy.

2. Which of the following is not a characteristic of ionic hydrides?

- A: They are crystalline solids.
- B: They have high melting points.
- C: They do not conduct electricity in any form.
- D: Both B and C.

3. Which of the following has the highest first ionization energy?

- A: Lithium
- B: Boron
- C: Carbon
- D: Oxygen

4. Which of the following oxides is amphoteric in character ?

- A: CaO
- B: CO_2
- C: NO_2
- D: BeO

5. Most stable hydride is formed by?

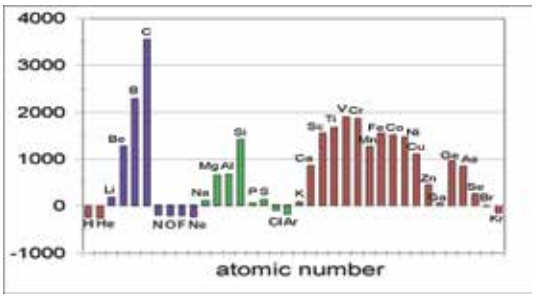
- A: Na
- B: K
- C: Mg
- D: F

6. Electron affinity depends on which of the following factors?

i. Size of the atom, ii. Nuclear charge, iii. Vacancies in the outermost shell

- A: iii only
- B: ii and iii only
- C: i and iii only
- D: i, ii and iii

7. The graph below is for which of the physical properties of elements?



- A: Atomic radius
- B: Ionization energy
- C: Melting points
- D: None of the above.

8. Which orbital is responsible for valency in Lanthanides and Actinides?

- A: s block
- B: p block
- C: d block
- D: f block

9. Which of the following statement is correct?

- A: All group II A oxides are basic in nature.
- B: Group VI A and VII A oxides are acidic in nature.
- C: All group III A oxides are amphoteric in nature.
- D: Both A and B.

10. Which of the following statement is not true?

- A: Positive ion is smaller in size as compared to the parent atom.
- B: Negative ion is smaller in size as compared to the parent atom.
- C: Ionic radius increase down the group.
- D: Within a period ionic raidus of positive ions decrease from left to right.

11. Which of the following compound has the highest acidity?

- A: MnO
- B: Mn_2O_3
- C: MnO_2
- D: Mn_2O_7

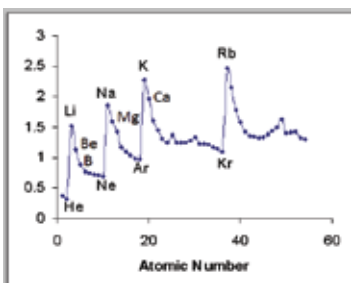
12. What is the trend of melting and boiling points of the elements of short periods as we move from left to right in a periodic table?

- A: Melting and boiling points decrease gradually
- B: Melting and boiling points first decrease then increase
- C: Melting and boiling points gradually increase
- D: Melting and boiling points first increase then deacrease

13. Which of the following has strongest basic character ?

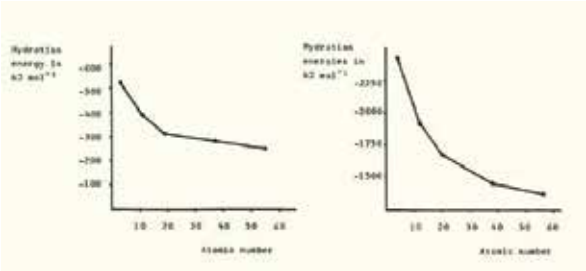
- A: P_2O_3
- B: AI_2O_3
- C: MgO
- D: Na_2O_3

14. The graph below is for which of the physical properties of the elements?



- A: Atomic radius
- B: Melting point
- C: Boiling point
- D: Ionization energy

15. The following graph shows hydration energy for?



- A: Elements within same group.
- B: Elements within same period.
- C: Transition elements.
- D: Metals.

16. Which one of the following has the smallest radius?

- A: Al^{+3}
- B: Si^{+4}
- C: Mg^{+2}
- D: Na^{+1}

17. Which halogen has the smallest electron affinity ?

- A: F
- B: CI
- C: Br
- D: I

18. Which of the following statement is correct?

- A: Metallic character remains same down the group.
- B: Metallic character decrease down the group.
- C: Metallic character increase along the period.
- D: Metallic character increase down the group.

TEST 4

1. Arrange the elements in trends of ionization energies?

- A: Ne<N<C<B
- B: B<N<C<Ne
- C: B<C<N<Ne
- D: Ne<B<C<N

2. The oxide of which of the following elements will be acidic in character ?

- A: Mg
- B: Rb
- C: S
- D: Na

3. If the radius of Na is 157 pm, which of the following is most likely to be the radius of Na^+?

- A: 95 pm
- B: 157 pm
- C: 200 pm
- D: 4000 pm

4. The outer most orbital involved in chemical bonding is called ?

- A: Molecular orbital
- B: Complete orbital
- C: Valence orbital
- D: Free orbital

5. Period 6 has how many elements?

- A: 8
- B: 10
- C: 18
- D: 32

6. Which of the following statement is correct?

- A: Energy is generally released when first the electron is absorbed by an element.
- B: Energy is generally absorbed when the first electron is absorbed by an element.
- C: Energy is may be absorbed or released when the first electron is absorbed by an element.
- D: Energy is generally released when the second electron is absorbed by an element.

7. Which of the following has the maximum electron affinity ?

- A: F
- B: Cl
- C: Br
- D: I

8. Which of the following is sodium?

- A: $^{11}X_{23}$
- B: $^{40}X_{19}$
- C: $^{26}X_{13}$
- D: $^{32}X_{16}$

9. What is the symbol of the element with only 5 electrons and 5 protons ?

- A: Li
- B: Be
- C: B
- D: N

10. With increasing atomic number within a period, the electron affinity?

- A: Increases
- B: Decreases
- C: Remains same
- D: None of the above.

11. Along a period, atomic radius decreases. This gradual decrease in radius is due to;

- A: Increase in number of shells
- B: Increase in number of electrons in valence shells
- C: Increase in number of protons in nucleus
- D: Decrease in number of shells

12. Which of the following have chemically dissimilar elements?

- A: Li and Na
- B: Mg and Ca
- C: F and Cl
- D: N and C

13. All elements of group IIA form ionic hydrides except?

- A: Be
- B: Mg
- C: Ca
- D: Both A and B

Group 1 To VI Elements

TEST 1

1. The elments of group I-A react violently with wtaer and make the solution?

- A: Neutral.
- B: Amphoteric.
- C: Acidic.
- D: Alkaline.

2. Which of the following have only one oxidation state?

- A: Transiton metals
- B: Halogens
- C: Alkali metals
- D: All of the above

3. An outer transition elements belong to:

- A: S-block
- B: P-block
- C: D-block
- D: F-block

4. Which electronic configuration corresponds to an element of group III-A of the periodic table?

- A: $1s^2 2s^2 2p^6 3s^2 3p^1$
- B: $1s^2 2s^2 2p^6\ 3s^2 3p^6 4s^2$
- C: $1s^2 2s^2 2p^6$
- D: $1s^2 2s^2 2p^6 3s^2 3p^3$

5. The least soluble alkaline earth metal hydroxide is?

- A: $Sr(OH)_2$
- B: $Ba(OH)_2$
- C: $Mg(OH)_2$
- D: $Be(OH)_2$

6. The milk of magnesia is used for the treatment of?

- A: Acidity
- B: Basicity
- C: Rancidity
- D: Jaundance

7. Which element is most abundant in the earth's crust?

- A: Iron
- B: Oxygen
- C: Silicon
- D: Carbon

8. Elements of group II-A are called alkaline earth metals due to the reason that?

- A: They occur in earth only.
- B: They form divalent cations only.
- C: They have ns^2 electronic configuration.
- D: Their oxides and hydroxides are alkaline in nature.

9. What is the nature of solution of borax?

- A: Neutral
- B: Alkaline
- C: Corrosive
- D: Acidic

10. Plaster of Paris is obtained from which of the following?

- A: Marble
- B: Bauxite
- C: Gypsum
- D: Lime stone

11. Oxidation of NO in the air produces?

- A: N_2O
- B: N_2O_3
- C: NO_2
- D: N_2O_5

12. Which one of the following is soda ash?

- A: $Na_2CO_3.2H_2O$
- B: $Na_2CO_3.10H_2O$
- C: Na_2CO_3
- D: $Na_2CO_3.H_2O$

13. Which one of the following is not an alkali metal?

- A: Francium
- B: Cesium
- C: Rubidium
- D: Radium

14. Slake lime is used in the manufacturing of which of the following?

- A: Plastics.
- B: Medicine
- C: Pigments
- D: Cement

15. Mortar is a mixture of?

- A: Lime, portland cement and water
- B: $MgCl_2$, tar and lime
- C: Slaked lime, plaster of paris and water
- D: Slaked lime, sand and water

16. Which catalyst is used in the contact process?

- A: Fe_2O_3
- B: V_2O_5
- C: SO_3
- D: Ag_2O

17. Lithium nitrate on heating gives?

- A: O_2
- B: $NO_2 + O_2$
- C: NO_2
- D: It is not decomposed on heating.

18. Which of the following compounds is formed when sodium burns in the excess of air?

- A: NaO_2
- B: Na_2O_2
- C: Na_2O
- D: Na_2O_3

19. Which one of the following reacts with haemoglobin of blood to form carboxyhaemoglobin?

- A: CO_2
- B: H_2O_2
- C: CO
- D: H_2

20. Down's cell is used to prepare which of the following?

- A: Sodium carbonate
- B: Sodium bicarbonate
- C: Sodium metal
- D: Epsom salt

TEST 2

1. Which is used as a filler for soap in the soap industry?

- A: Vitreous silica
- B: Sodium silicate
- C: Silica glass
- D: Aluminium silicate

2. Elements of group I-A colours in flame. It is due to their?

- A: Low melting point.
- B: Softness.
- C: Single electron in the outermost orbit.
- D: Low ionization potential.

3. When Na is dropped in water it catches fire due to the reason that?

- A: It is a metal.
- B: It is highly electropositive in nature.
- C: It has higher atomic mass.
- D: H_2 gas evolved in the reaction is combustible in nature.

4. Which one of the following gas will turn lime water milky?

- A: Cl_2
- B: NO_2
- C: CO
- D: CO_2

5. Which group of metals form a strong alkaline stable carbonate?

- A: Transition metals.
- B: Alkaline metal.
- C: Coing metal.
- D: Alkali metals.

6. O, S, Se and te are known as?

- A: Halogens
- B: Akali metals
- C: Chalogens
- D: Coinage metals

7. Which of the following is an amphoteric oxide?

- A: MgO
- B: BeO
- C: SrO
- D: CaO

8. Which of the following is true about the various allotropes of carbon?

- A: Coal is the hardest and coke is softest.
- B: Diamond is the hardest and coke is the softest.
- C: Graphite is the hardest and lamp black is the softest.
- D: Diamond is the hardest and graphite is the softest.

9. Alkali metals are included in the category of?

- A: Noble gases
- B: Transition elements
- C: Representative elements
- D: Inner transition elements

10. The general name of the ore $CaSO_4.2H_2O$ is?

- A: Gypsum
- B: Dolomite
- C: Calcite
- D: Epsom salt

11. Which of the following carbonates decompose on moderate heating?

- A: Rb_2CO_3
- B: Li_2CO_3
- C: Na_2CO_3
- D: K_2CO_3

12. How does boron differ from the other members of group III-A?

- A: It has maximum valency of six.
- B: It has much lesser radius.
- C: It is a non-metal.
- D: It is not covalent in its compounds.

13. Which of the following elements exhibit maximum catenation property?

- A: C
- B: Pb
- C: Ge
- D: Sn

14. The most dense element in the choices below is:

- A: Li
- B: K
- C: Ca
- D: Ba

15. Gold dissolves in aqua regia to give which of the following?

- A: Aurmchloric acid.
- B: Auric chloride.
- C: Aurous nitrate.
- D: Aurous chloride.

16. Which one of the following oxides of nitrogen is a brown coloured gas?

- A: N_2O_5
- B: N_2O
- C: N_2O_3
- D: NO_2

17. The catalyst used in the Haber's process is:

- A: Iron catalyst with metal oxide promoters
- B: Magnesium oxide
- C: Aluminium oxide
- D: Silicon dioxide

18. The brown gas formed when metal reduces concentrated $HNO_3$is?

- A: N_2O_5
- B: N_2O_3
- C: NO_2
- D: NO

19. N_2 molecule is less reactive due to which of the following reasons?

- A: High electronegativity.
- B: Stable electronic configuration.
- C: High dissociation energy.
- D: Small atomic radius.

20. BF_3 acts as lewis acid because it behaves as?

- A: Free radical
- B: Cationic species
- C: Electrophile
- D: Nucleophile

TEST 3

1. What is the molecular formula of white phosphorous?

- A: P_4
- B: P
- C: P_3
- D: P_2

2. Which of the following metals gives NO with HNO_3?

- A: Fe
- B: Zn
- C: Cu
- D: Sn

3. Which of the following is obtained by heating H_3PO_4 to 600°C?

- A: $P_2O_5 + 3H_2O$
- B: H_3PO_5
- C: HPO_3
- D: $H_4P_2O_7$

4. In the Down's cell $CaCl_2$ is added to NaCl to achieve which of the following?

- A: Increase the solubility.
- B: Increase the dissociation.
- C: Increase conductivity.
- D: Lower melting point.

5. Basic lead chromate is formed when lead chromate is boiled with which of the following?

- A: Dilute alkali hydroxide.
- B: Dilute acid.
- C: Strong alkali hydroxide.
- D: Strong acid.

6. What is the final product of hydrolysis of P_2O_3?

- A: $(PHO_3)n$
- B: H_3PO_3
- C: $H_6P_4O_{13}$
- D: H_3PO_4

7. Diamond is hard because?

- A: It has a high value of refractive index.
- B: All the valence electrons of each C-atom are involved in the bonding.
- C: It is a giant molecule.
- D: It is a crystalline allotrope of carbon.

8. Which one of the following elements is most electropositive out of group I-A and II-A group?

- A: K
- B: Mg
- C: Na
- D: Ca

9. Which of the following is sylvite?

- A: KCl
- B: Na_2SO_4
- C: $NaNO_3$
- D: KNO_3

10. Which of the following metal hydroxides decompose on heating?

- A: $Be(OH)_2$
- B: $Mg(OH)_2$
- C: $Ca(OH)_2$
- D: All except A.

11. Which of the following gas burns with a blue flame?

- A: CO_2
- B: NO
- C: N_2
- D: CO

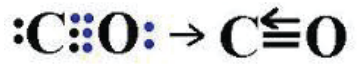
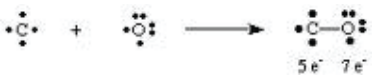
12. Which of the following is the formula of metaphosphoric acid?

- A: $H_4P_2O_7$
- B: H_2PO_3
- C: H_3PO_4
- D: HPO_3

13. Which of the following does not give flame test?

- A: Li
- B: Ba
- C: Mg
- D: Sr

14. The electronic structure of carbon monoxide is reresented as:

- A:
- B: 
- C: 

- D: **C=O**

15. Which of the following does not form an oxide on heating?

- A: KNO_3
- B: Na_2CO_3
- C: Li_2CO_3
- D: $CaCO_3$

16. The solubility of akaline metal hydroxide?

- A: Increases down the group
- B: Decreases down the group
- C: Remain same through out the group
- D: First increase then decrease down the group

17. Which compound gives carbon with conc. H_2SO_4 ?

- A: Starch
- B: Ethyl alcohol
- C: Oxalic acid
- D: Copper

18. The chemical formula of magnesite is?

- A: $CaMg_3(SiO_3)_4$
- B: $MgCl_2$
- C: $MgCO_3$
- D: $MgSO_4$

19. Orthoboric acid when heated to red hot gives?

- A: Boric anhydride.
- B: Pyroboric acid.
- C: Metaboric acid.
- D: Tetraboric acid.

20. Inert pair effect is observed when?

- A: Non-metallic character decreases.
- B: The ns^2 electrons remain inert and do not take part in bonding.
- C: A bond pair of electrons is present in the element
- D: An element shows inertness in chemical combination.

TEST 4

1. The main constituent of teeth is?

- A: $Ca_3(PO_4)_2$
- B: $CaSO_4$
- C: $CaCO_3.MgCO_3$
- D: $CaCO_3$

2. What is the general electronic configuration of VI-A group elements?

- A: ns^2np^4
- B: ns^2np^3
- C: ns^2np^2
- D: ns^2np^5

3. Which of the following properties is more applicable to alkaline earth metals as compared with alkali metals?

- A: Lower electro negativities.
- B: Less basic hydroxides.
- C: Lower ionization potentials.
- D: Large ionic radii.

4. Alkaline earth metal hydroxide decompose on heating. Which of the following of the following reactions is the correct representation of decomposition:

- A: MOH ---> $M_2O + H_2O_{(G)}$
- B: $M(OH)_2$---> $MO + H_2O_{(G)}$
- C: 2MOH ---> $2MO + H_{2(G)}$
- D: 4MOH ---> $4M + 2H_2O_{(G)} + O_{2(G)}$

5. Which is the most important by bi-product formed in the manufacture of NaOH through Nelson Cell method?

- A: Na_2CO_3
- B: Cl_2
- C: KOH
- D: K_2CO_3

6. What are the products for hydrolysis of PCl_3?

- A: $H_3PO_4 + HCl$
- B: $PH_3 + HClO$
- C: $H_3PO_3 + HClO$
- D: $H_3PO_3 + HCl$

7. Point out the ore of potassium amongst the following?

- A: Dolomite
- B: Cryolite
- C: Bauxite
- D: Carnallite

8. What is the common name for $MgSO_4.7H_2O$?

- A: Carnallite
- B: Dolomite
- C: Beryl
- D: Epsom salt

9. Which of the following metal carbonates are stable towards heat?

- A: Alkali
- B: Alkaline
- C: Both of the above
- D: None of the above

10. Which of the following is the starting material in Brikland Eyde's process for creating nitric acid?

- A: Chile saltpeter
- B: Ammonia NO_2
- C: $NO_2 + NH_3$
- D: Air

11. In alkaline earth metals, the electrons are more firmly held to the nucleus and hence?

- A: They should be highly reactive.
- B: Radii of alkaline earths are bigger than alkali metals.
- C: Reactivity of alkaline earths is greater than alkali metals.
- D: Ionization energy of alkaline earths is greater than alkali metals.

12. When sugar is treated with conc. H_2SO_4 the sugar becomes black due to?

- A: Decolourization
- B: Dehydration
- C: Hydrolysis
- D: Hydration

13. Which of the following shown moderate electrical conductivity?

- A: Carbroundum.
- B: Diamond.
- C: Graphite.
- D: Silica.

14. Which one of the following hydroxide is insoluble in water?

- A: LiOH
- B: KOH
- C: $Be(OH)_2$
- D: $Ba(OH)_2$

15. The general electronic configuration of group IV-A elements is?

- A: ns^2np^6
- B: ns^2np^4
- C: ns^2np^3
- D: ns^2np^2

16. The oxide of boron B_2O_3 is?

- A: Ionic
- B: Basic
- C: Amphoteric
- D: Acidic

17. Chemical composition of colemanite is?

- A: $Ca_2B_6O_{11}.5H_2O$
- B: CaB_4O_7
- C: $Na_2B_4O_7.4H_2O$
- D: $CaNaB_5O_9.8H_2O$

18. What is chemical formula of red lead?

- A: Pb_2O_3
- B: Pb_3O_4
- C: PbO
- D: Pb_2O

19. Which of the following is Natron / crystal carbonate?

- A: $Na_2CO_3.10H_2O$
- B: $Na_2CO_3.H_2O$
- C: $NaHCO_3$
- D: NaOH

20. Which of the following hydroxides is the weakest base in the given list?

- A: RbOH
- B: NaOH
- C: LiOH
- D: KOH

Halogens & Nobel Gases

TEST 1

1. Which of the following is colourless volatile liquid?

- A: HF
- B: HCl
- C: HBr
- D: HI

2. Which of the following is the strongest acid?

- A: HClO
- B: $HClO_2$
- C: $HClO_3$
- D: $HClO_4$

3. Bleaching powder is used for which of the following?

- A: For making unshrinkable wool.
- B: In sterilization of water.
- C: As a disinfectant.
- D: All of the above.

4. Noble gases do not react with other elements because?

- A: The sizes of their atoms are very small.
- B: They have completely paired up and stable electron shells.
- C: They are not found in abundance.
- D: They are monoatomic.

5. The strongest halogen acid is?

- A: HF
- B: HBr
- C: HCl
- D: HI

6. Which of the following halogens is purified by sublimation?

- A: Fluorine
- B: Chlorine
- C: Iodine
- D: Bromine

7. Which of the following is used as a non stick coating for cooking pans?

- A: Teflon
- B: Freon
- C: Argon
- D: Krypton

8. Photographic plates are coated with a film of which of the following?

- A: $AgNO_3$
- B: AgBr
- C: AgCl
- D: AgI

9. Which of the following is used in the bactericidal lamps?

- A: Rn
- B: Ar
- C: Kr
- D: Xe

10. $CaOCl_2$ acts as a bleaching agent only in the presence of?

- A: Pure O_2
- B: Dry air
- C: Moisture
- D: Sunlight

11. Which of the following shows the electronic configuration of the outer most shell of the halogens?

- A: ns^2np^5
- B: ns^1np^6
- C: ns^2np^1
- D: ns^3np^4

12. When Cl_2 is passed over dry slaked lime, the main product is?

- A: $Ca(OCl_2)_2$
- B: $CaOCl_2$
- C: $CaClO_2$
- D: $Ca(ClO_2)_2$

13. Hydrogen halides acts as a reducing agent in which order?

- A: HF<HCl<HBr<HI
- B: HF>HCl>HBr>HI
- C: HF<HBr<HCl<HI
- D: HF>HBr>HCl>HI

14. What is the order of decreasing oxidation power in halogens?

- A: $F_2>Cl_2>Br_2>I_2$
- B: $F_2<Cl_2<Br_2<I_2$
- C: $F_2>Br_2>Cl_2>I_2$
- D: $F_2<Br_2<Cl_2<I_2$

15. Bleaching powder is prepared through which of the following process/es?

- A: Hasenclever's method
- B: Beckmann's method
- C: Landberger's method
- D: Both A and B.

16. Which of the following halogen is used as a germicide?

- A: I_2
- B: F_2
- C: Br_2
- D: All of the above.

17. What is the formula of teflon?

- A: $CCl_3.F_2$
- B: $(C_2F_4)_n$
- C: $(CF_2.CCl)_n$
- D: $CCl_3.F$

18. Which of the following halogens react with hot and cold NaOH to give different reaction?

- A: Cl_2
- B: Br_2
- C: I_2
- D: F_2

19. Which of the following halogens is solid at room temperature?

- A: I_2
- B: Br_2
- C: F_2
- D: Cl_2

20. For the prediction of earth quakes which of the following gas is used?

- A: Ne
- B: Ar
- C: Kr
- D: Rn

TEST 2

1. Which of the following is used in radiotherapy?

- A: Rn
- B: Xe
- C: Kr
- D: Ar

2. "Available chlorine" is the chlorine liberated by the action of?

- A: Excess of dilute acid on the bleaching powder.
- B: A drop of dilute acid on bleaching powder.
- C: Zn dust and HCl.
- D: MnO_2 on hot conc.HCl.

3. The anhydride of $HClO_4$ is?

- A: ClO
- B: ClO_2
- C: ClO_3
- D: Cl_2O_7

4. Which of the following statement is not correct?

- A: The most electronegative halogen is flourine.
- B: The most reactive halogen is flourine.
- C: The strongest oxidizing halogen is iodine.
- D: A halogen which is liquid at room temperature is bromine.

5. The acidic strength increase of halogens acid in which order?

- A: HF<HCl<HBr<HI
- B: HF<HBr<HCl<HI
- C: HF>HCl>HBr>HI
- D: HF>HBr>HCl>HI

6. HF can not be preserved in a glass bottles because?

- A: It reacts with aluminium oxide of the glass
- B: It reacts with silica of the glass
- C: It reacts with the visible part of glass
- D: It reacts with the sodium oxide of glass

7. Which of the following is used in the Geiger counters?

- A: Xe
- B: Ar
- C: Kr
- D: Ne

8. Hydrogen bond is strongest in which of the following hydrogen halide?

- A: HF
- B: HCl
- C: HBr
- D: HI

9. Which of the following displace Br_2 from an aqueous solution containing Br^- ion?

- A: I_2
- B: Cl_2
- C: Cl^-
- D: I_3^-

10. Which one of the following oxyacids of fluorine exists?

- A: HFO_4
- B: HFO_3
- C: HFO
- D: All of the above.

11. Iodine deficiency in the diet is known to cause which of the following disease?

- A: Beri-beri
- B: Night blindness
- C: Goiter
- D: Rickets

12. With an increase of atomic number of the halogens, they?

- A: Lose the outermost electrons less readily.
- B: Gain electrons less readily.
- C: Become less denser.
- D: Become lighter in colour.

13. Which one of the following provides an inert environment for welding?

- A: Carbon dioxide
- B: Neon
- C: Helium
- D: Krypton

14. One of the products of the reaction between solid $KMnO_4$ and conc.HCl is?

- A: $HClO_4$
- B: MnO_2
- C: A red liquid
- D: A greenish yellow gas

15. Which of the following hydrogen halide is the weakest acid in solution?

- A: HF
- B: HBr
- C: HI
- D: HCl

16. The strongest reducing agent in the list below is?

- A: HBr
- B: HI
- C: HF
- D: HCl

17. In which method counter-current principle is used to prepare the bleaching powder?

- A: Beckmann's method
- B: Hasenclever's method
- C: Landerson's method
- D: None of the above

18. Considering the atomicity of noble gases, they are?

- A: Diatomic
- B: Triatomic
- C: Monoatomic
- D: Any of the above

19. The shape of ClO_4^- is?

- A: Linear
- B: Pyramidal
- C: Angular
- D: Tetrahedral

20. Which of the following represents the correct configuration of the outermost energy level of an element of zero group in the ground state?

- A: s^2p^2
- B: s^2p^4
- C: s^2p^5
- D: s^2p^6

Test 3

1. **Which among the following is the most polarized noble gas?**

   - A: Kr
   - B: Ar
   - C: Xe
   - D: He

2. **The structure of XeF_2 molecule is?**

   - A: Tetrahedral
   - B: Trigonal planar
   - C: Pyramidal
   - D: Linear

3. **Iodine is most soluble in the solution of?**

   - A: $KMnO_4$
   - B: H_2O
   - C: KI
   - D: KOH

4. **Fluorine is a better oxidizing agent than Br_2 because of its:**

   - A: Small size.
   - B: More electron-electron repulsion.
   - C: Non-metallic nature.
   - D: Higher electro negativity.

5. **Whic of the following halogen acids can be obtained by the action of concentrated sulphuric acid on halides?**

   - A: HF
   - B: HBr
   - C: HI
   - D: All of the above

6. **Which of the following is a paramagnetic oxide of chlorine?**

   - A: Cl_2O_7
   - B: Cl_2O_6
   - C: ClO_4
   - D: ClO_2

7. **For bleaching powder which of the following is incorrect?**

   - A: Reacts with dilute acid to release Cl_2.
   - B: Light yellow colored powder.
   - C: Highly soluble in water.
   - D: Oxidizing agent.

8. The oxy acids of halogens show their strength in the order?

- A: $HXO > HXO_2 > HXO_3 > HXO_4$
- B: $HXO < HXO_2 < HXO_3 < HXO_4$
- C: $HXO < HXO_3 < HXO_2 < HXO_4$
- D: $HXO_4 > HXO_2 > HXO_3 > HXO$

9. Which halogen has the maximum number of oxides?

- A: I_2
- B: Br_2
- C: Cl_2
- D: F_2

10. Which of the following is the strongest acid in all aqueous medium?

- A: Hypochlorous acid
- B: Chloric acid
- C: Perchloric acid
- D: Halic acid

11. The halogen which forms of compounds with Xe is?

- A: F
- B: Cl
- C: Br
- D: I

12. Which one of the following reasons makes the halogens volatile in nature?

- A: Halogen molecules are more reactive.
- B: The forces existing between the discrete molecules are only weak Van der Waal's forces.
- C: Halogen molecules are bound by strong forces.
- D: Halogen molecules are bounded by electrostatic forces.

13. The noble gas forming maximum number of compounds is?

- A: Rn
- B: Xe
- C: Ne
- D: Kr

14. Which of the following oxides of halogens have low thermal stability?

- A: Oxides of fluorine
- B: Oxides of chlorine
- C: Oxides of bromine
- D: Oxides of iodine

15. Thermally the most stable oxyacid of chlorine is?

- A: $HClO_4$
- B: $HClO_3$
- C: HClO
- D: $HClO_2$

16. Which of the following does not increase from HCl to HI?

- A: Heat of formation.
- B: Dipole moment.
- C: Heat of fusion.
- D: Melting point.

17. Which of the following halogen acid in gaseous state is found as a equilibrium mixture of manomers and hexamers?

- A: HF
- B: HCl
- C: HBr
- D: HI

18. The weakest oxyacid of chlorine is?

- A: $HClO_2$
- B: $HClO_3$
- C: $HClO_4$
- D: HClO

19. Chlorine heptaoxide Cl_2O_7 reacts with water to form?

- A: Hypochlorous acid
- B: Chloric acid
- C: Perchloric acid
- D: Chlorine and oxygen

Test 4

1. Which of the following halogen is used in the preparation of the herbicides?

- A: F_2
- B: Cl_2
- C: Br_2
- D: I_2

2. Which silver salt is fairly soluble in water?

- A: AgF
- B: AgBr
- C: AgCl
- D: AgI

3. Which of the following is formed when NaOH reacts with Cl_2 in the cold state?

- A: $NaClO_4$
- B: $NaClO_3$
- C: NaClO
- D: $NaClO_2$

4. Which of the following halogen is used as a disinfectant?

- A: Chlorine
- B: Bromine
- C: Iodine
- D: Flourine

5. Indicate the correct statement?

- A: Cl_2 is the strongest oxiding agent.
- B: I_2 is a volatile solid.
- C: Br_2 is more reactive than Cl_2.
- D: Cl_2 is insoluble in water.

6. Which of the following is the radioactive element of group VII-A?

- A: Br
- B: Cl
- C: F
- D: At

7. Flourine does not show positive oxidization state due to the absence of?

- A: p-orbitals
- B: d-orbitals
- C: s-orbitals
- D: f-orbitals

8. The acid employed for the etching of the glass is?

- A: Aqua regia
- B: HF
- C: $HClO_4$
- D: H_2SO_4

9. Which of the following halogens is most easily reduced?

- A: I_2
- B: Br_2
- C: Cl_2
- D: F_2

10. What is the colour of I_2 in CCl_4?

- A: Colourless
- B: Bluish green
- C: Brown
- D: Violet

11. Which one of the following halogens is present in teflon?

- A: I_2
- B: Br_2
- C: Cl_2
- D: F_2

12. Oxidizing power of halogens depends on which of the following factors?

- A: Energy of dissociation.
- B: Electron affinity of atoms.
- C: Hydration energies of ion.
- D: All of the above.

13. Which one of the following oxyacids is the strongest oxidant?

- A: $HClO_3$
- B: HClO
- C: $HClO_4$
- D: $HClO_2$

14. In the preparation of Cl_2 from HCl, MnO_2 acts as?

- A: Reducing agent
- B: Dehydrating agent
- C: Oxidizing agent
- D: Catalytic agent

15. Which of the following halides are used in the toothpastes?

- A: Iodides
- B: Bromides
- C: Chlorides
- D: Fluorides

16. Bleaching powder is not used for which of the following?

- A: As a reducing agent.
- B: For manufacture of chloroform.
- C: As a disinfectant and germicide.
- D: For bleaching cotton, wood pulp etc.

17. Fluorine is largely used in?

- A: Rocket fuels.
- B: Making teflon.
- C: Making feron.
- D: All of the above.

18. Noble gas compounds are more common is xenon due to its?

- A: Zero electrons affinity.
- B: Structure.
- C: Higher ionization potential.
- D: Lower ionization potential.

19. Which of the following halogen is liquid at room temperature?

- A: Fluorine
- B: Chlorine
- C: Bromine
- D: Iodine

20. Which of the following is not a use of helium?

- A: In weather ballons.
- B: In welding.
- C: As cooling medium for nuclear reactor.
- D: In flourescent tubes.

Transition Elements

TEST 1

1. Which of the following is also known as pig iron?

- A: Impure sulphide ore of iron.
- B: Alloy of steel.
- C: Wrought iron.
- D: Cast iron.

2. An atom or molecule having partially filled orbitals show which of the following behavior?

- A: Ferromagnetism.
- B: Paramagnetism.
- C: Diamagnetism.
- D: None of the above.

3. There are four orbitals s,p,d and f. which order is correct with respect to increasing energy of the orbitals?

- A: 4s<4p<4d<4f
- B: 4s<4f<4p<4d
- C: 4f<4p<4d<4s
- D: 4s<4d<4p<4f

4. A complex compound may contain which of the following?

- A: A simple cation and a complex anion.
- B: A complex cation and a simple anion,
- C: Both of the above.
- D: None of the above.

5. The number of lone pair of electrons provided by the ligand to the central atom or ion the complex is called?

- A: Coordination number.
- B: Coordination sphere.
- C: Chelate number.
- D: Ligand number

6. Which of the following elements can be adsorb in interstics of transition elements?
i. Hydrogen, ii. Carbon, iii. Nitrogen

- A: i only.
- B: i and ii only
- C: ii and iii only.
- D: i, ii and iii.

7. Transition of electrons from 'd to d' orbitals gives which property to the transition elements?

- A: Paramagnetism
- B: Variable oxidation state
- C: Colour
- D: Interstitial compounds

8. 3-d series elements are present in?

- A: Third period
- B: Fourth period
- C: Fifth period
- D: Sixth period

9. Coordination sphere can be which of the following?

- A: Cationic
- B: Anionic
- C: Neutral
- D: All of the above

10. d-block elements are also called?

- A: Alkali metals
- B: Alkaline earth metals
- C: Transition elements
- D: Electron deficient elements

11. Non-typical transition elements belong to which series?

- A: I-A and II-A
- B: II-A and II-B
- C: II-B and III-B
- D: III-B and III-A

12. Which of the following has the lowest percentage of carbon?

- A: Wrought iron
- B: Cast iron
- C: Steel
- D: All have same percentage

13. Identify ligand in the complex $[Ag(NH_3)_2]Cl$?

- A: Ag
- B: NH_3
- C: Cl
- D: There is no ligand.